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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/080,568	02/25/2002	Stephen M. Gates	YOR919980324 US2	9141

21254 7590 10/02/2002

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EXAMINER

CAO, PHAT X

ART UNIT PAPER NUMBER

2814

DATE MAILED: 10/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/080,568

Applicant(s)

GATES ET AL.

Examiner

Phat X. Cao

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 February 2002.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 11-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 11-18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) <u>2</u> . | 6) <input type="checkbox"/> Other: |

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DETAILED ACTION

Claim Objections

1. Claim 11 is objected to because of the following informalities: in claim 11, line 8, “delectric” should be changed to “dielectric”. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. Claim 16 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

- in claim 16, the recitation “a second gate electrode” is unclear because “a first gate electrode” is not mentioned in the previous claims (i.e., claims 11 and 12).

- in claim 16, the recitation “above each field effect transistor” is unclear because the location of the field effect transistor is not specified in the previous claims language (claims 11 and 12).

Drawings

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the limitation of having a field effect transistor made of single crystal semiconductor material and comprising a first gate electrode in

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contact with one of the conducting regions formed on a substrate of semiconductor material must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in-

(1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effect under this subsection of a national application published under section 122(b) only if the international application designating the United States was published under Article 21(2)(a) of such treaty in the English language; or

(2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that a patent shall not be deemed filed in the United States for the purposes of this subsection based on the filing of an international application filed under the treaty defined in section 351(a).

5. Claims 11-12 and 15 are rejected under 35 U.S.C. 102(e) as being anticipated by Aozasa et al (US. 6,054,734).

Aozasa (Fig. 23) discloses an array of microelectronic elements comprising: a substrate 204 of semiconductor material; a lower layer 206 of dielectric material disposed with a lower surface in contact with the substrate and an upper surface in spaced adjacent thereto; a pattern of mutually electrically isolated metal conductors 216 (column 4, lines 19-21) disposed within the

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lower layer 206 of dielectric material, the metal conductors 216 comprising a plurality of spaced apart conducting regions extending to the upper surface of the lower layer 206; an upper layer 244 of dielectric material disposed with a lower surface thereof in contact with and bonded to the upper surface of the lower layer; and a plurality of field effect transistor, each disposed within the upper layer 244 of dielectric material and comprising single crystal semiconductor material 210 (column 18, lines 50-59) and a first gate electrode in electrical contact with one of the conducting regions 216 at the upper surface of the lower layer 206.

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 11-14 and 17-18 are rejected under 35 U.S.C. 103(a) as being unpatentable over

Durlam et al (US. 5,940,319) in view of Bronner et al (US. 6,242,770).

Durlam (Fig. 17) discloses an array of microelectronic elements comprising: a substrate 81 of semiconductor material; a lower layer 86 of dielectric material disposed with a lower surface in contact with the substrate and an upper surface in spaced adjacent thereto; a pattern of mutually electrically isolated metal conductors 82 disposed within the lower layer of dielectric material, the metal conductors 82 comprising a plurality of spaced apart conducting regions extending to the

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upper surface of the lower layer 86; an upper layer 96 of dielectric material disposed with a lower surface thereof in contact with and bonded to the upper surface of the lower layer 86; and a plurality of diodes and MTJs structure 93 and 92 disposed within the upper layer of dielectric material, each of diodes and MTJs being in electrical contact with only one of the conducting regions 82 at the upper surface of the lower layer.

Durlam does not disclose that diodes are single crystal Si diodes.

However, it would have been obvious to form Durlam's diodes as single crystal Si diodes because according to Bronner, such single crystal Si diodes (column 9, lines 63-65) would provide high conductivity, high rectification, and low total resistance (column 3, lines 1-4).

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phat X. Cao whose telephone number is (703) 308-4917. The Examiner can normally be reached on Monday through Thursday. If attempts to reach the Examiner by telephone are unsuccessfully, the Examiner's supervisor, Olik Chaudhuri, can be reached on (703) 306-2794.

Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist whose telephone number is (703) 308-0956. Group 2800 fax number is (703) 308-7722 or (703) 308-7724.

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PC
September 30, 2002

A handwritten signature in black ink, appearing to read 'Phat X. Cao', written in a cursive style.

PHAT X. CAO
PRIMARY EXAMINER